

NREL's Plans for Domestic and International Solar Resource Assessments

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and

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Over the past several years the National Renewable Energy Laboratory's Solar Resource Assessment Team has focused its efforts on three primary areas: (1) development and implementation of quality measurement activities; (2) development of tools for mapping large area solar resource assessments and 3) development and dissemination of products for the U.S. industry and government planners. In (1) we continue operation of the Solar Radiation Research Laboratory in Golden, support to a national measurement program, and development of data quality assessment software. In (2) we develop and support research in modeling approaches and the use of Geographic Information Systems for displaying and analyzing results of large-area assessments. In (3) we develop refined solar resource products such as Typical

Meteorological Year data sets, and distribute all of our products through media such as the Renewable Resource Data Center Web site, and an internet-based interactive Map Server. With our primary support coming from National Center for Photovoltaics, funded by the U.S. Department of Energy, we anticipate that our work will continue down these three paths, and that our collaborations with other agencies and organizations such as universities and the National Aeronautics and Space Administration, will be strengthened. Partnerships such as these allow us to leverage significant public investments in satellite and data archiving techniques so that we can all work together in providing the renewable energy industry with the best possible products for expanding U.S. and world-wide deployments of solar technologies.

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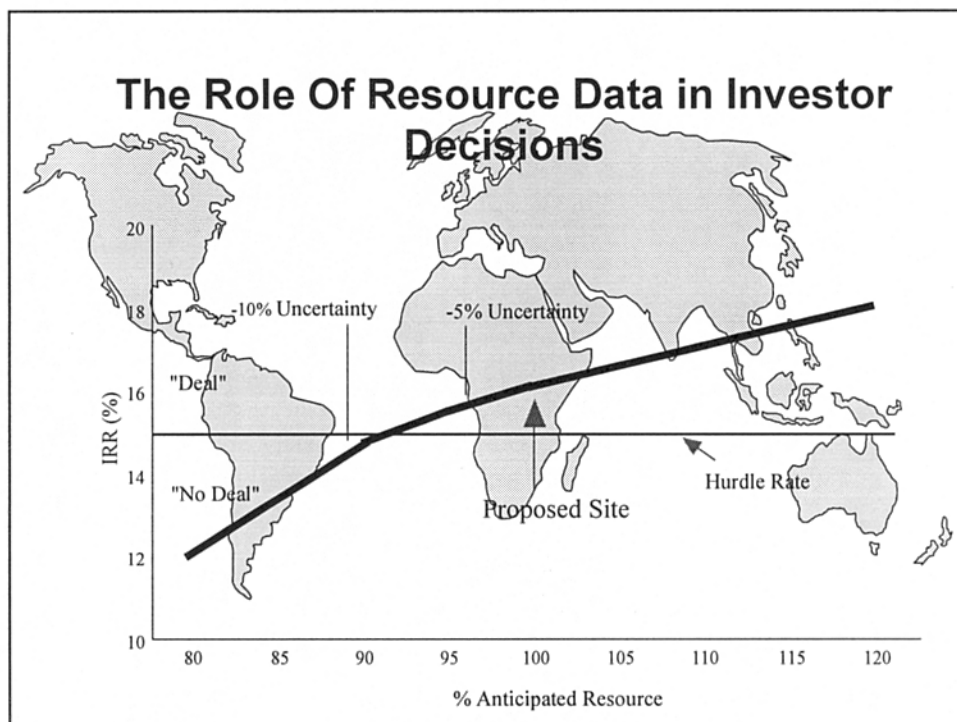
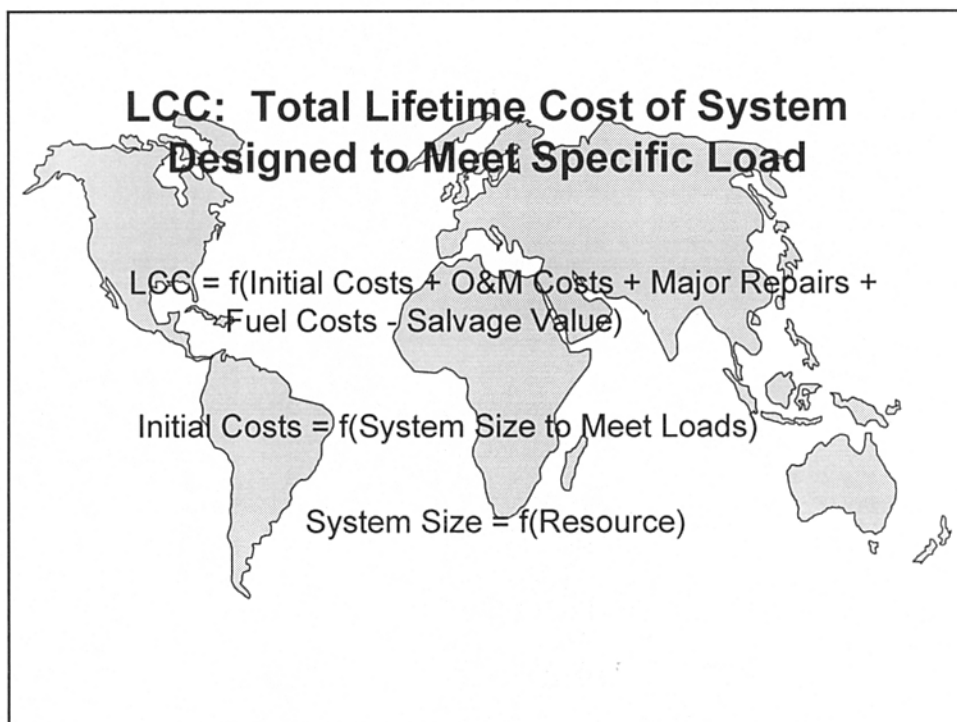
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Importance of Quality Resource Data

- Determination of Life Cycle Costs (LCC)
- Calculation of Cost of Energy (COE)
- Evaluation of Internal Rate of Return (IRR)



NREL's Solar Resource Assessment Goals

- Improve Temporal, Spatial Resolutions to Assist Renewable Deployments
 - Domestic
 - International
- Refine Data Accuracy and Precision
- Make Products Available to Users

Key Activities

- Measurements and Data Quality Assessment
- Solar Resource Modeling and Mapping
- Products and Data Dissemination

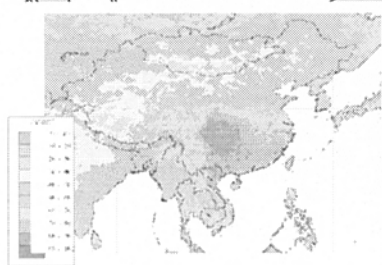
Measurement Activities



- Solar Radiation Research Laboratory
 - Measurement System Testing
 - Calibrations
- Support to National Measurement and Research Programs
- Data Quality Assessments

Solar Resource Mapping

Percent Cloud Cover: Annual




- CSR Model Applications
- GIS Analysis
- Collaborations
 - NASA/LaRC
 - Universities
 - International Satellite Researchers

Products and Dissemination

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- Data Products (TMY's, Manuals, Maps)
 - Renewable Resource Data Center
<http://rredc.nrel.gov>
 - GIS Internet-Based Map Server
 - GIS Analyses

Future Plans

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- Refine Resource Mapping Capabilities
 - Develop Products for Specific Applications and Technologies
 - Grid-connected systems
 - Off-grid systems
 - Provide GIS-Based Analyses
 - Disseminate Products through RReDC, Map Server

General Conclusions

